

REMARKS

Claims 1 and 8 are amended. Claim 2 is cancelled. Claim 9 is added. Claims 1 and 3-9 remain in the case. /

Claims 1 and 3-8 were rejected under 35 U.S.C. §103(a) as being unpatentable over Iida et al. (U.S. Patent No. 6,655,026) in view of Hayden, Sr. (U.S. Patent No. 4,258,084). Although the rejection of the claims 1 and 8 is traversed, claims 1 and 8 have been amended to further distinguish from the cited prior art. Iida et al. discloses shot peening a connecting rod, and especially a production process for a connecting rod for an internal combustion engine. The surface of a connecting rod is completely different and cannot be compared with the surface of a piston pin hole. The connecting rod has an exposed exterior surface that is essentially convex and easy to access for shot peening. It is more difficult to shotpeen a pin hole because the pin hole has a concave surface and is arranged in the skirt. Therefore, it is not easily accessible for shot peening. As a result, it would not have been obvious to one having ordinary skill in the art at the time the invention was made to look at the shot peening of an easily accessible connecting rod to provide the invention of shot peening an interior concave piston pin hole that is not easily accessible.

Further, in the present invention, the surfaces of the piston pin holes are directly bombarded with a shot peening medium. In the cited prior art of Iida et al., the surfaces are carburized and quenched forming a carburized layer (step A in claim 1 of Iida et al.), followed by grinding the carburized layer (step B in claim 1 of Iida et al.). After the steps of (A) and (B), then the surface is shot peened. In the present invention, the surface of the pin hole is directly shot peened without the prior steps of carburization, quenching or grinding the surface.

The Hayden, Sr. disclosure (U.S. Patent No. 4,258,084) is related to shot peening cylinder sleeves or walls in an internal combustion engine. As stated in the disclosure of Hayden, Sr., at Col. 2, ll. 24-29, and Col. 3, ll. 6-15, a lubricating agent 15 is applied to the surface before peening. Hayden, Sr. states that the lubricant is embedded into the surface at the point of impact. The present invention does not coat the pin holes with a lubricant before peening. The shot peening is done directly to the surface of the pin holes.

In addition, claims 1 and 8 feature that the shot peening is introduced into the piston pin hole surfaces at room temperature. This feature is not disclosed in either Iida et al. or in Hayden, Sr. In a prior Office Action, the Examiner stated that it would be obvious to one having ordinary skill in the art at the time the invention was made to know that cold hardening processes such as shot peening can be performed at room temperature since it is convenient to perform the process at room temperature. However, this is not the reason for performing the process at room temperature, and it appears that the Examiner is using his own personal knowledge for his rejection. Therefore an affidavit from the Examiner is requested under CFR 1.104(d)(2) to provide citations or reasonings for his personal knowledge. In actuality, it is not the convenience of room temperature that makes it important to process the shot peening at room temperature, but instead the advantage of working at room temperature is that residual compressive stress is induced in the surface which contributes to an increased end strength therein. Iida et al. teaches in claim 1 the step of grinding to a depth at which compressive residual stress exhibits a maximum value. Therefore, Iida et al. teaches a different means to increase strength than the present invention. As a result, independent claim 1 and claim 8 are believed to be allowable over the cited prior art. The associated dependent claims are also believed to be allowable.

New claim 9 has been added to include deleted portions of claim 1 including that the crater shaped indentations are configured to carry in or out and prevent the oil from flowing away during a change in content. New claim 9 is believed to also be allowable.

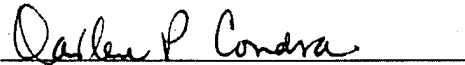
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This amendment should place this case in condition for passing to issue. Such action is requested. If the Examiner feels that prosecution of the present application can be expedited by way of an Examiner's Amendment, the Examiner is invited to contact the Applicant's attorney at the telephone number listed below.

Respectfully submitted,

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